

A contribution to the Herpetology of Mexico. By E. D. Cope.

(Read before the American Philosophical Society, April 17, 1885.)

I. THE COLLECTION OF THE COMISION CIENTIFICA.

This collection has been on exhibition in the department of Mexico in the World's Exposition at New Orleans the present winter. Through the courtesy of the Commission, and especially of Dr. Fernando Ferrari Perez, the Director, I had the opportunity of making an examination of it. The following catalogue is valuable on account of the precision with which the localities can be fixed, which is a point of first importance in the zoölogy of Mexico. The collection was made in the States of Vera Cruz and Puebla, and the localities mentioned are all in the Tierra Templada.

BATRACHIA.

SPELERPES BELLII Gray. Jalapa, Vera Cruz.

BUFO INTERMEDIUS Gthr. Yzucar de Matamoros, Puebla.

BUFO AGUA Daud. From the belly of a *Sibon annulatum*.

HYLA NIGROPUNCTATA Boul. Teziutlan, Puebla.

HYLA GRACILIPES Cope, Puebla. Said to be very abundant near the city of Puebla. I have led Dr. Boulenger (Catalogue British Museum) into error with regard to this species by accidentally inverting the relative sizes of the eye and tympanic disc in describing them. The disc is one-half the diameter of the eye, and not the reverse. In the Puebla specimens the posterior digits are a little shorter than in the type.

SMILISCA BAUDINI D. and B. Jicaltepec, Vera Cruz.

LITHODYTES RHODOPIS Cope. Puebla.

LACERTILIA.

ANOLIS ? SALLÆI Gthr. Jicaltepec.

PHRYNOSOMA ORBICULARE Wieg. Teziutlan.

UTA BICARINATA Dum. Yzucar de Matamoros.

This locality greatly extends the range of this species, which has hitherto only been known from the West Coast and the Plateau.

SCELOPORUS MICROLEPIDOTUS Wieg. Teziutlan.

SCELOPORUS ÆNEUS Wieg. Yzucar de Matamoros.

SCELOPORUS SPINOSUS Wieg. Tlapanala Puebla.

SCELOPORUS VARIABILIS Wieg. Jicaltepec ; Matamoros.

SCELOPORUS GRACIOSUS B. & G. var. Jalapa ; Matamoros.

CYCLURA PECTINATA Wieg. Tlapanula.

CYCLURA ACANTHURA Wieg. Tlapanula.

CHAMÆLEOPSIS MEXICANUS Wieg. Misantla, Vera Cruz.

- LEMANCTUS SERRATUS* Cope. Jicaltepec.
CNEMIDOPHORUS SEXLINEATUS L. Matamoros.
CNEMIDOPHORUS COMMUNIS Cope. Matamoros.
CNEMIDOPHORUS UNDULATUS Wieg. Jicaltepec.
GERRHONOTUS LIOCEPHALUS Wieg. Teziutlan.
BARISSIA IMBRICATA Wieg. ? Loc.
EUMECES FURCIROSTRIS Cope. Jalapa.
ANELYTROPSIS PAPILLOSUS Cope, gen. et sp. nov. Anelytropidarum.

The present form is essentially interesting as introducing for the first time to the Western continent, the family of the Anelytropidæ, or the Typhlophthalm lizards with the eye entirely concealed, and with the tongue scaly. The importance of this discovery is considerable, as it shows that the scincoid lizards have undergone in the New World the same degenerative process as in the Old World, and in the same way. This is a new fact, even supposing that the Aniellidæ of America are a degenerate form of the same family, which is not probable. Dr. Boulenger believes* that that family is a degenerate type of the Anguid stem; a view in which I suspect he is correct. Anelytroptosis is a degree further down in the scale than Aniella, in having the epidermis absolutely continuous over the eye, as in other members of the family of Anelytropidæ, and as in the Typhlopid family of snakes. As in other forms of this character, the life of this type is doubtless subterranean, which accounts for its having so long escaped observation.

Pending the time when I shall be able to make an osteological study of this genus, I give its external characters, as follows:

Char. gen. Rostral plate capping muzzle, the nostril at the junction of its posterior border with the suture separating the loreal and first labial. No frontonasal nor supraorbital plates. Three plates on top of head, which should probably be identified as anterior and posterior frontal and parietal. Eye scarcely visible through the single ocular plate. Scales equal, smooth. Vent not terminal. No limbs. No preanal pores.

This genus only differs from Feylinia Gray (= Anelytroptis Hallow), in the arrangement of the lateral plates of the muzzle. In that genus and Typhlosaurus, the only other genus of the family, the rostral plate is as in Acontias; *i. e.*, divided longitudinally on each side by a fissure which extends from the nostril posteriorly. Whether the internal characters differ remains to be ascertained †. I give the genus the name Anelytroptosis in order to justify the family name Anelytropidæ. This will produce no confusion, as the name Anelytroptis was given by Hallowell to the genus which had previously been named Feylinia, and as a synonym disappears from view.

* Annals and Magazine of Natural History, 1885, p. 121.

† I have given the skeletal characters of Feylinia and Typhlosaurus, Proceeds. Acad. Philadelphia, 1864, p. 224.

Char. Specif. Form slender. Tail moderately long, with obtuse extremity. Scales scincoid, with rounded edges, everywhere equal, including the preanal region. Color brownish flesh-color.

The head is distinguishable from the body by its slightly greater width, and is slightly contracted at the position of the orbits, and continued as a distinct muzzle. The body is cylindrical, and the tail is a little longer than one-fourth the total length. Twenty longitudinal series of scales. The area represented by the rostral plate of Acontias, is invaded on each side by two labial plates, and a large loreal above them. Behind the second labial plate is a very small third, and above it is a large ocular plate which extends upwards and forwards to a line with the superior border of the loreal. The pale spot which represents the eye is situated in the lower posterior corner. The fourth and last labial is a little larger than the second, and has a narrowly rounded posterior extremity. Above it is a small postocular, which is in contact with the posterior frontal. On the summit of the head there are three scuta. The anterior, or anterior frontal is the smallest. It forms a transverse band between the loreal and ocular of one side and those of the other. The succeeding plate, the postfrontal, is the largest. It is succeeded by the parietal, which is a transverse plate, concave in front and convex posteriorly, and which is separated from the postocular on each side by a single scale. Posterior to this scute, the scales of the body commence.

There is a large symphyseal plate which is a triangle with its apex posterior and truncate. It is bounded on each side by a very large inferior labial, which is also a triangle. This is followed on the labial margin by two very small labial plates. A small body scale succeeds the symphyseal, and this is connected with the small posterior labials by a narrow plate on each side. These are followed by the body scales. Six laterally imbricated scales bound the vent in front.

Total length, M. .170; length of tail, .045; of head, to line connecting rictoris, .0041.

The rostral, loreal and anterior two labial scuta are marked with minute papillæ, which when removed leave punctiform impressions. They are not very closely placed. From near Jalapa.

OPHIDIA.

RHABDOSOMA SEMIDOLIATUM D. & B. Misantra.

ADELPHICUS QUADRIVIRGATUS Jan. Jicaltepec.

As Dr. J. G. Fischer remarks, Rhegnops Cope is identical with Adelpicus Jan.

TANTILLA CALAMARINA Cope. Teziutlan.

HENICOGNATHUS, sp. Jicaltepec.

RHADINÆA PROTEROPS Cope. Teziutlan.

RHADINÆA DECORATA Gthr. Jicaltepec.

- RHADINÆA IMPERIALIS B. & G. Jicaltepec.
 OPHIBOLUS POLYZONUS Cope. Jicaltepec.
 PLOIOCERCUS ELAPOIDES Cope. Teziutlan.
 NINIA ATRATA Hallow. var. SEBÆ D. & B. Jicaltepec.
 NINIA DIADEMATA B. & G. Jalapa.
 STORERIA DEKAYI Holbr. Jicaltepec.
 EUTÆNIA ORNATA B. & G. Jalapa.
 EUTÆNIA SCALARIS Cope. Teziutlan.
 EUTÆNIA PULCHRILATUS Cope.
 TROPIDONOTUS RHOMBIFER Hallow. Misantla.
 SPILOTES CORAIS L. var. EREBENNUS Cope.
 DRYMOBIUS MARGARITIFERUS Schl. Misantla.
 HAPSIDOPHRYS MEXICANUS D. & B. Jicaltepec.
 LEPTOGNATHUS NEBULATUS L. Jicaltepec.
 LEPTOGNATHUS FASCIATA Günth. Jicaltepec.
 TRIMORPHODON ? COLLARIS Cope. Matamoros.
 SIBON ANNULATUM L. Teziutlan ; Jicaltepec.
 ELAPS APIATUS Jan. Jicaltepec.
 BOTHROPS ATROX L. Jicaltepec.
 CROTALOPHORUS RAVUS Cope. An adult specimen which differs from the
 type in bearing only twenty-one rows of scales. The dorsal spots are
 much longer than wide, covering five rows of scales each way.
 CROTALUS TRISERIATUS Wagl. Teziutlan.
 CROTALUS BASILISCUS Cope.
 BOA MEXICANA Jan. Jicaltepec.
 STENOSTOMA sp.

II. ZACUALTIPAN, HIDALGO.

The small collection enumerated below was made partly by myself and partly by my friend, Dr. Santiago Bernad, in the neighborhood of the town of Zacualtipan in the north-eastern part of the State of Hidalgo, close to the boundary line of the State of Vera Cruz. The region is elevated, and belongs to the warmer part of the Tierra fria, but the ravines which intersect the country in many places, have the characters of the Tierra templada, and at a short distance from the town merge into the Tierra caliente. The higher lands are covered with brake, *Pteris aquilina*, and plants of the genera *Andromeda* or *Vaccinium* or both ; or are covered with forests of pine or of fir. Deciduous trees are of the genera *Alnus*, *Negundo*, *Liquidambar*, *Platanus*, etc., and wild species of *Rubus* and *Potentilla* abound. The *Taraxacum densleonis* is common, but whether introduced or not, I do not know. Introduced species of *Vinca* and *Rosa* grow lux-

uriantly. On the sides of the ravines where moist, *Zamia* and short tree-ferns, with other tropical plants, abound, and in their bottoms, innumerable Cactaceæ, *Agaves* and *Tillandsia* are growing in a state of nature; and oranges, bananas, *Erythrina*s, are cultivated. The reptiles of the following catalogue were nearly all taken on the high country, the only exception I know of being the *Syrrhophus*, which came from the bottom of a ravine about two thousand feet below the general level.

BATRACHIA.

SYRRHOPHUS VERRUCIPES, sp. nov.

Posterior limbs of moderate length, the heel reaching to the anterior edge of the eye. The toes of moderate length, with small pallettes, but the anterior a little larger, and with prominent warts below, which are especially large at the ends of the metapodial bones. One large palmar, and two small solar tubercles. Skin everywhere smooth except on the sides, which are tubercular-areolate. No abdominal or gular fold. Head flat above, moderately wide, with muzzle slightly prominent, vertical loreal region, and obtuse canthus rostralis. Tympanic membrane more than two-thirds diameter of eye-slit. External nares almost at extremity of muzzle; internal nares larger, and so widely separated as to be partially lateral in position.

Color above dark bluish gray, marked with numerous black spots with ill-defined borders. Limbs similar, with black cross-bands, which continue on the external digit of each foot. Upper surface of femur, with close white spots on a dark ground; posterior face dark, with a few small white spots. Edge of lip with a few light spots. Inferior surface white, unspotted.

Length of head and body, .026; of head to line connecting ricti oris, .008; length of fore limb, .018; of posterior limb, .039; of posterior foot, .018; of tarsus, .008; width of head behind, .009.

This species is well marked by its proportions and its color. Its legs are longer and the tympanum is larger than in the *S. marnochii* of Texas, which it slightly resembles in color. I found it in the bottom of a rocky gorge of a stream near its junction with the San Miguel river, at a depth of at least 1800 feet below the level of the town of Zacualtipan.

The *Phyllobates bicolor*, type of that genus, has narrow lateral nasal bones, as in *Elosia*. In *Syrrhophus* they are as in *Hylodes*. The *Phyllobates* with areolated bellies, form, I think, a separate genus, for which I propose the name *Hypodictyon*; type *H. ridens* (*Phyllobates ridens* Cope). Other species are *H. verruculatus* and *H. chalcus* of Peters.

There is a tree-frog, hitherto referred to *Hyla*, which is peculiar in having the glandular areolation, which is confined to the belly in all other species, extended over the dorsal region as well. This is the *Hyla gratiosa* of Leconte of Florida and Georgia. On this account I propose to refer this to a new genus under the name of *Epedaphus*.

HYLA MIOTYMPANUM Cope. This species was in the water at the time of my visit (March). In daylight its color is bright green.

RANA HALECINA Kalm.

LACERTILIA.

SCELOPORUS MICROLEPIDOTUS Wieg.

BARISSIA IMBRICATA Wieg.

OLIGOSOMA GEMMINGERI Cope. Indian name, Cholumpipi.

OPHIDIA.

RHABDOSOMA MUTITORQUES, sp. nov.

Scales all smooth, in seventeen longitudinal series. One postocular; inferior labial of first pair in contact in front of pregenials, which are twice as long as postgenials. Internasals one-fourth size of prefrontals. Frontal wider than long, anterior border gently convex. Parietals as long as prefrontal and frontal together. Rostral plate not visible from above. Superior labials six, all higher than long, except fifth, which is as high as long, and the sixth, which is longer than high. The fifth is separated by one, and the sixth by two temporals from the parietal. The eye and the superciliary plate are quite small. Seven inferior labials, fourth largest and in contact with postgenials. Gastrosteges 172; anal entire; urosteges 24.

Color plum-brown, the scales of three or four lateral rows slightly pale on the edges. In old specimens the gastrosteges are similarly colored with pale edges, but in younger specimens, there are at intervals pale spots, and the throat and chin are pale, probably pale yellow in life. In young specimens a yellow band crosses from one angle of the mouth to the other, involving the anterior three-quarters of the parietal plates. In larger specimens this is indistinct, and in a large specimen (455 mm.) the band has disappeared.

Dimensions of a medium sized specimen: total length M. .338; to canthus oris, .008; of tail, .051. Dimensions of the largest specimen: total length, .455; to canthus oris, .009; of tail, .045.

I owe six specimens of this species, representing different ages, to my friend Dr. Santiago Bernad. They are all from the high land about Zacualtipan.

This species represents the extensive genus *Rhabdosoma* D. & B., of which I know eight species as found within the limits of Mexico and Central America, and as many from more southern parts of the neotropical realm. This genus I propose to retain as distinct from the *Elapoidis* of Boie (*Catastoma* and *Geophis* of Wagler), on account of the smooth scales. In the latter they are more or less carinate. There are five species of *Elapoidis* in the neotropical region north of Darien. Differing from both of these in its divided anal scutum, is the genus *Adelphicus* of Jan. This name of Jan has priority over *Rhegnops* Cope, which is identical. The *Rhabdosoma* of Bocourt is not the same, as I have else-

where stated.* I was led to believe this to be the case, on account of the statement of Bocourt in his generic diagnosis that the anal plate is divided; whereas in his descriptions and figures they are represented as entire. The following is a synopsis of the species of *Rhabdosoma* found north of Darien.

I. One pair of genaeal plates.

R. zebrinum Jan.

II. Two pairs of genaeal plates.

a. Two postoculars.

R. bicolor Günth. = *Rhabdosoma hoffmanni* Jan. Iconogr. Gen. des Ophiidiens.

aa. One postocular.

β. First pair of inferior labials separated.

R. rostrale Jan.

ββ. First pair of inferior labials in contact.

γ. Seven superior labials.

R. nasale Cope.

γγ. Six superior labials.

R. mutitorques Cope.

R. guttulatum Cope, sp. nov.

Head rather short and wide, and slightly distinct from the body. Scales in seventeen entirely smooth rows. Two pairs of genaeals, the posterior in contact, and one half as long as the anterior. Superior labials six, the first and second higher than long; the third and fourth, which bound the eye, longer than high, as is the sixth; fifth long as high, and in contact with the parietal without intervention of a temporal, as in *R. tricolor*. Eye not very small; the superciliary plate several times as large as the postocular. Parietals rather short. Frontal as long as wide, the anterior border gently convex. One temporal between parietal and sixth superior labial. Gastrosteges, 157; one anal; urosteges, 39. Total length, .313; to rictus oris, .009; of tail, .051.

Color above, uniform brown, with a reddish tinge; below, uniform yellowish. The four lowest rows of scales on each side have a yellow spot at the tip, which becomes larger inferiorly. On the first row of scales the brown is reduced to a spot at the base of each scale.

This species is allied to the *R. mutitorques*, but differs in various minor details. The proportions of the head are more like those of a *Ninia*. The prefrontals are shorter, and the frontal is longer. The eyes are larger, so that the labials below it are not so high. The superciliary plate is much larger, and the temporal present in *R. mutitorques* is absent in *M. guttulatus*. The color is different. There are three specimens of the *R. guttulatus* in the collections of the National Museum at Washington, all brought from the State of Vera Cruz by Messrs. Sartorius and Sumichrast.

* Proceeds. Amer. Philos. Soc., 1885, p. 178.

γγγ. Five superior labials.

R. semidoliatum D. & B.

The American species of *Elapoidis* are the following: *E. chalybæus* Wagl. (*E. sieboldii* Jan.); *E. psephotus* Cope; *E. dolichocephalus* Cope; *E. brachycephalus* Cope, and *E. dugesi* Boc. (*Geophis dugesi* Bocourt).

STORERIA OCCIPITOMACULATA Storer. The most southern locality yet noted for this species. The *S. tropica* Cope has the head shields of this species, but the squamation of the *S. deKayi*.

EUTENIA SUMICHRASTI Cope.

EUTENIA PULCHRILATUS Cope.

SIBON ANNULATUM L.

CROTALUS TRISERIATUS Wagl.

III. GENERAL NOTES.

EUTENIA INSIGNIARUM Cope. Proceeds. Amer. Philosophical Society, 1884, p. 172, and

E. MELANOGASTER Jan. Iconographie Generale des Ophidiens.

I am indebted to my excellent friend, Dr. Julius Flohr, of the city of Mexico, for a canoe excursion on the lake Xochimilco, which is seventeen miles from the city, in the valley of Mexico. Here I had an opportunity of seeing the botany and zoölogy of the very irregular shores, which are so curiously constructed by the art of the natives. They are both indented in the form of long, narrow docks, and extended in the form of piers into the waters of the lake. The ends of these piers are sometimes more or less detached below, so as to readily be moved, from which the later statements regarding the floating islands have originated. The piers are planted with crops of vegetables or flowers, which are sold in the adjacent city.

The ends and shores of the piers are the resting place of innumerable water snakes, which can be readily observed from a canoe. The wife of our Indian boatman was particularly acute in detecting these animals before either my friend or myself could see them. We caught a considerable number, and found that they belong to the two species above named. The habits of the two differ somewhat. The *E. insigniarum* is the more active, sooner seeking the water, where it swims, keeping close to the shore, and remaining more or less in sight until it conceals itself in a hole. The *E. melanogaster*, on the other hand, lies quietly so as to be more easily taken in the hand; but, if it once takes to the water, it seeks the depths, and is no more seen. It is much less disposed to bite than the *E. insigniarum*; the latter being, like its ally, the *E. sirtalis*, a very pugnacious snake.

The *E. melanogaster* is one of the few species of the genus which does not possess bands. However, in one specimen I observed a faint trace of a lateral band on each side. It is also variable as to the number of its ocular plates, having them 2-2, 2-3, 1-3, or 2-4, 2-3 being apparently the

most common arrangement. The food of both these species is the *Rana montezumæ* Baird, and another species allied to *R. haleeina*. The life of this lake is in other directions exceedingly prolific, especially in fishes and in minute Crustacea.

EUTENIA PULCHRILATUS Cope. Proceeds Amer. Philosoph. Society, 1885, p. 174.

This species turns out to be widely distributed in Mexico. Besides the localities already mentioned in this paper, Mr. Hoege sends it from either the valley of Mexico, or the adjacent one of Toluca.

EUTENIA FLAVILABRIS Cope. Same locality.*

TOLUCA LINEATA Kenn. A specimen displaying the typical characters, among others those of the genus Toluca, in the extension forwards of the frontal to the internasal plates. Same locality.

TANTILLA CALAMARINA Cope. Same locality.

EUMECES BREVIROSTRIS Gthr. var. A specimen which differs much from the typical ones in coloration. The light lines are very narrow, so as to be separated by four rows of dorsal scales; and the adjacent edges of the latter are traversed by a blackish line, giving five longitudinal lines for the back. The inferior light line is bordered below by blackish, and below this, two rows of scales have dark adjacent edges, forming lines. Same locality.

HYLA ARENICOLOR Cope. The same region.

IV. COZUMEL ISLAND.

This island is off the east coast of Yucatan, and measures twenty-four miles in length. It was recently visited by the U. S. Fish Commission steamer *Albatross*, and a fine Natural History Collection was made there. The number of reptiles collected is small; the following is a list of them:

BUFO AGUA Daud. No. 13,907.

ARISTELLIGER IRREGULARIS, sp. nov.

Head rather elongate, narrow to the muzzle. Superior labials nine to the posterior border of the orbit, the seventh and eighth below the middle of the orbit. The symphyseal plate large, with a triangular plate on each side below the first labial, which is the first of a diminishing series of three scales, the fourth being about equal to the adjacent ones. Two small plates connect the lateral triangular ones. Scales of throat and head above minute; those of the dorsal region of the same and larger and smaller sizes irregularly mixed; all rounded and convex in form. The larger ones predominate on the sides. Thoracic and abdominal plates small, smooth; twenty-three longitudinal rows on the belly. A short palpebral spine over the eye. Lamellæ of penultimate digit sixteen. The legs are short, the hinder limb pressed forwards reaching the axilla.

The color is said by Mr. Ridgway, the distinguished ornithologist, who

* Allied to *Eutenia* is *Chilopoma* Cope (Rept. U. S. G. G. Surveys, W. of 100 Meridian, G. M. Wheeler, vol. v). This name is preoccupied and may be changed to *Stylocemus*.

caught the specimen, to be green in life. In alcohol it is pale brown above, varied with a few light points, which are more numerous and distinct on the head. There is an indistinct reticulation on the posterior part of the sides. Labial plates dark brown, the lines of their distinguishing sutures in some cases yellow. Inferior surfaces straw color, except gular region, which is pale brown yellow spotted.

Length to vent, .073; do. to line of canthus oris, .013; do. to line of posterior borders of auricular meatus, .018; do. to axillæ, .035; length of anterior limb, .025; do. of anterior foot, .010; do. of posterior limb, .031; do. of posterior foot, .015. The end of the tail is reproduced and so its length cannot be given, but its base is quite robust. No. 13,903.

This species is nearer to the *A. præsignis* Hallow, than the *A. lar* Cope. Both are West Indian in habitat. A fourth species of the genus is described by Bocourt under the name *Iâiodactylus georgéonsis*, in the Miss. Sci. Mexique Reptiles, p. 41, and is handsomely figured, Pl. x, fig. 1. It differs from the other species according to Bocourt in the absence of the palpebral spine, and from the *A. irregularis* in the equality of the dorsal scales. It is from the Belize.

SCELOPORUS SCALARIS Weigm. No. 13,904.

CYCLURA PECTINATA Weigm.

IGNANA TUBERCULATA RHINOLOPHA Weigm.

BASILISCUS VITTATUS Weigm. No. 13,905.

EUTÆNIA RUTILORIS, sp. nov.

Scales in nineteen longitudinal rows, all keeled. Superior labial plates eight, the fourth and fifth below the eye; the fifth and sixth separated from the parietal by a large temporal, and the seventh separated from the parietal by a single wide temporal. On one side there are two small scales between these large temporals which are wanting on the other side. Loreal as high as long; one preocular. Internasals as long as prefrontals. Prefrontal elongate, with concave sides, well separated from preoculars. Parietals elongate. Postgenaeals longer than pregenaeals.

Color brownish-olive, with a pale olive lateral band extending along the third and fourth rows of scales. No dorsal band except for a short distance posterior to the nape, and a very faint trace beyond. Head dark brown above, with a pair of light parietal spots. Superior and inferior labial plates and the first three large gastrosteges reddish-orange or salmon color. Under surfaces everywhere else pale olive, without markings. When the skin is stretched some light spots appear, which give an incomplete outline of a row of quadrate dark spots above the lateral band. No traces of a superior series, although there is space for them.

Total length, M. .755; length to canthus oris, .021; of tail, .214. Gastrosteges .148; one anal; urosteges 92. No. 18,906.

This species belongs to the *E. saurita* group, but is more robust than the North American species that belong to it. It resembles in coloration and in the keeled first row of scales the *E. sackeni* of Florida. It differs in the

shorter tail, which is one-third the length in the *E. sackeni*, in the eight superior labials, and in the generally stouter proportions, as well as in the red lips.

PSEUDEMYIS ORNATA Bell.

CINOSTERNUM LEUCOSTOMUM Dum. 18,910-11-12-13.

This is a variable species. Two specimens from Tehuantepec from Sumichrast (Nos. 141 and 76, Coll. Sumichrast), both males, are rather wider and more depressed than are specimens from Tobasco and Cozumel. The posterior lobe of the plastron expands abruptly at the base on each side. In nine specimens from Tobasco from Dr. Berendt, the posterior lobe displays its lateral convexity behind the base on each side; the anterior lobe is more acuminate rounded, and the shell is less depressed. *None of these specimens have axillary scuta.* Four specimens from Cozumel are intermediate in the form of the lobes of the plastron. The carapace is rather elevated, and exhibits traces of those keels as do the others.

The species of this genus which inhabit Mexico, with which I am acquainted, are the following:

I. Carapace with three distinct longitudinal keels above.

Carapace flat, depressed.....*C. scorpioides* Wagl.

Carapace compressed, elevated.....*C. shavianum** Bell.

II. Carapace without distinct keels.

a. Axillary scuta rudimental or wanting and not reaching the inguinals. Plastron entire posteriorly.

Inguinal plate mostly behind posterior hinge; gular very small.....

C. brevigulare† Cope.

Inguinal plate large, in front of posterior hinge; gular large.....

C. leucostomum Dum.

* *C. mexicanum* Lec. *C. cruentatum* A. Dum.

† *C. leucostomum* "Dum." Cope. Journal Academy Phila., 1875, p. 153. Two specimens from Costa Rica represent this species, which is clearly distinct from the *C. leucostomum*. Besides the two characters above mentioned, it differs from the *C. leucostomum* in the sudden enlargement of the penultimate marginal scute as compared with the antepenult; the former is much elevated, the latter is very narrow in the horizontal direction. In *C. leucostomum* the size of these plates is graduated. The long diameter of the gular scute is less than two-fifths the length of the anterior lobe of the plastron; it is from one-half to two-thirds the same dimension in the *C. leucostomum*. The free lobes of the plastron are relatively larger than in *C. leucostomum*. The fixed portion is .75 of the anterior, and .66 of the posterior lobe; in *C. leucostomum* it is nearly equal to the anterior, and is .75 of the posterior. It also differs from the same species, in having no trace of median or lateral keels of the carapace. Of the two specimens, one, probably a male, is a little more elevated and a little narrower than the other. The measurements of the two are ♂: length M. .144; width, .089; of the ♀: length, .127; width, .083. The axillary plate, as in *C. leucostomum*, is mostly in front of the axilla. The inguinal plate on the other hand is much shorter anteriorly, where it narrows to a point, and extends even further posterior to the posterior hinge-line, which is not the case in *C. leucostomum*.

From the Tierra Caliente of Costa Rica at Sipurio, on the east coast. Discovered by Dr. Wm. M. Gabb.

aa. Axillary scuta larger, reaching the inguinal; plastron notched behind.

Carapace narrower; bridge not grooved behind; posterior lobe of plastron longer..... *C. hirtipes* Wagl.

Carapace wider; bridge grooved behind; posterior lobe of plastron very short..... *C. flavescens* Agass.

V. NOTES ON ANOLES.

ANOLIS AUREOLUS, sp. nov.

Belongs to the group of the genus with round tail and smooth ventral scales.

The facial ridges are distinct, but obtuse, and soon disappear, and enclose a shallow concavity. The supraorbital scuta are separated on the middle line by one or two rows of scales, and are distinct on the sides of the front, but disappear without reaching the canthal row. They are separated at the facial concavity by six rows of flat, smooth scales. The occipital scale is moderate, equaling the auricular meatus in size, and is separated from the supraorbitals by four rows of scales. The supraoculars form a disc of six scales, which is longer than wide, with a row of four or five scales of intermediate size on the external side. Six rows of loreal scales. Infralabials smaller than the inferior labials, but distinguishable from the mental scales.

Head rather short and wide, shorter than the tibia (including the heel). The hind limb extended reaches to the end of the muzzle. Digital dilatations moderate. Fan not large. Lateral scales granular; a few median dorsal rows not quite so large as the ventrals, weakly keeled.

<i>Measurements.</i>	M.
Length of vent.....	.040
“ “ auricular meatus.....	.011
“ “ axilla.....	.0183
“ “ fore leg.....	.0192
“ “ femur.....	.011
“ “ tibia (with heel).....	.012
“ “ posterior foot.....	.0154
Width of head just behind orbits.....	

This species belongs to the group to which pertain the small species, *A. trochilus*, *roderiguesi*, *guentheri*, *bransfordi*, etc. I have five specimens of the *A. aureolus*, and comparison is not difficult with the species named in view of the good descriptions and figures given by Bocourt in the Mission Scientifique du Mexique. To simplify the comparison I throw it in tabular form:

- a.* Series of supraorbital plates separated medially.
- b.* Continued as distinct on the front.
- c.* Continued to the series of the canthus rostralis.

Six supraocular scales ; one row between supraorbitals ; muzzle elongate ; six interrugal rows ; median dorsals small, weakly keeled ; ear opening large *A. roderiguesi*.

cc. Not continued to canthal series.

About twelve supraoculars, of which three are largest ; three rows between supraorbitals ; muzzle longer ; nine interrugal rows ; median dorsals smooth ; ear large *A. trochilus*.

Six principal supraoculars ; one or two rows between supraorbitals ; six rows interrugals ; muzzle short ; median dorsals small, weakly keeled ; ear large *A. aureolus*.

"Fifteen supraoculars ; one or two rows between supraorbitals ; ear small, less than occipital plate." (Bocourt) *A. guentherii*.

Twelve supraoculars ; one row between supraorbitals, six rows of interrugals ; ear large ; muzzle short *A. bransfordii*.

"Eight to ten keeled supraoculars ; one row between supraorbitals ; one interrugal row ; ear opening small, less than occipital scale ; scales of front and muzzle tricarinate" ... *A. baccatus*.

aa. Supraorbital scales in contact medially.

"Ten or twelve supraoculars ; scales of muzzle smooth ; ear opening small, much less than occipital plate." (Bocourt)

A. bouvierii.

Of the *Anolis aureolus* the Smithsonian Institution possesses four specimens from Yucatan, obtained by Arthur Schott, and two specimens from Guatemala sent by Henry Hague.

Color above golden gray ; below (in alcohol) light golden yellow. The females are tinged with brown above, and have a trace of a yellowish dorsal band. In two of the males there are three small black quadrangular spots on the middle line of the nape and back separated by wide spaces.

ANOLIS QUAGGULUS, sp. nov.

Belonging to the section of the genus with round tail and keeled ventral scales.

There are seven rows of truncate and keeled dorsal scales, which are much larger than the ventrals, or the granular laterals, from which they are abruptly distinguished. Muzzle short and narrowed. Supraorbital series separated by three rows of keeled scales, and continued well on muzzle, but not to the canthus rostralis. They are separated on the muzzle by four rows of polygonal, nearly smooth scales. Facial rugæ obsolete ; facial concavity shallow. The supraocular disc consists of two principal large longitudinal median scuta, surrounded by seven or eight smaller ones. Occipital scale little larger than those by which it is surrounded, two of which separated it from the supraorbitals. Auricular meatus much larger. Five rows of loreal, and one row of suborbital scales. Tibia shorter than head. Infralabials very narrow, keeled. When the posterior limb is extended forwards the end of the longest toe marks

the front of the orbit. Scales on exposed surfaces of femur and forearm large, keeled. Fan large.

The general color is a golden green. On the back is a series of blackish chevrons, with the angle directed posteriorly, and with the lateral branches thickened anteriorly. From the apex of each branch a delicate blackish line descends vertically, stopping on the side below its middle, thus dividing the side into vertical areas. Head more yellow above; limbs reddish brown.

<i>Measurements.</i>		M.
Length to vent.....		.0325
“ “ auricular meatus.....		.0090
Width at “ “0058
Length of anterior limb.....		.015
“ “ posterior limb.....		.0265
“ “ femur008
“ “ posterior foot.....		.011

This species is allied to the *A. tropidonotus* Pet. and the *A. uniformis* M., coming nearest the latter in its scutellation. The scales of the head are however quite different, and the dorsal scales less numerous and of a different form. The color is unlike anything hitherto observed in the genus.

One specimen from the San Juan river, Nicaragua, obtained by Robert Kennicott.

ANOLIS UNIFORMIS, sp. nov.

This species is very near to the *Anolis tropidonotus* of Peters, and I should hesitate to separate it had I not a considerable number of specimens of both. The differences are three. First, the equality in size between all the scales of the frontal region, so that the supraorbitals cannot be distinguished by size; second, the smaller number of rows of larger dorsal scales, and third, the uniformly smaller size. The color also differs in all the specimens.

The dorsal scales are in 10-12 rows, while in the *A. tropidonotus* they are in 14-16 rows; in both the scales are imbricate and not truncate. There are three rows of supraoculars which are in contact with the supraorbitals as far as they go, the middle two only being larger than the rest. There are five rows between the anterior prolongation of the supraorbitals on the muzzle. All the scales have one strong keel; those round the small occipital consisting of little more than a longitudinal keel. Facial rugæ obsolete; cavity slight. Auricular meatus much larger than occipital plate. The extended hind leg does not quite attain the nostril; tibia a little shorter than the short head. Seven rows of loreal scales; and two of suborbitals. Infralabials small, keeled.

The color is reddish brown above and greenish below, limbs and head above brown.

	<i>Measurements.</i>	M.
Length to vent.....		.0365
“ “ auricular meatus.....		.0120
“ of fore leg.....		.0180
Width of head behind orbits.....		.0880

Many specimens from Guatemala from Henry Hague, and one from Yucatan from Arthur Schott.

VI. A SYNOPSIS OF THE MEXICAN SPECIES OF THE GENUS SCELOPORUS Wieg.

The genus *Sceloporus*, as is well known, consists of terrestrial, and therefore depressed thoracopleurous Iguanidæ, with flat scales and distinct parietal scuta, and femoral pores, without preanal pores and gular dermal fold or collar. Its especial habitat is Mexico and Central America, the south-western parts of the United States and California. A single species ranges over the entire eastern district of the Nearctic Realm. Outside of the districts named it does not occur.

The species are rather numerous, but their exact number has been uncertain. It is with the view of determining this question that the present investigation has been undertaken. Since Wiegmann described the most abundant of the Mexican species, synopses have been published by Duméril and Bibron and Bocourt. The latter author has published also, in the Report of the Mission Scientifique of Mexico, most admirable plates of many of the species. The material which has furnished the basis of the present paper is largely the property of the National Museum of Washington. It has been furnished by the following naturalists: Messrs. Riotte, Van Patten, Hague, Berendt, Sumichrast, Xantus, Sartorius, Dugés, Potts and Major. On my own part, I have received specimens from Messrs. Dugés, Hoege, Ferrari-Perez, Villada, Herrera and Bernad. To all of these gentlemen I wish to extend my thanks for their kind attention in the matter.

The distinction of many of the species of this genus is not accomplished without difficulty. I recommend it as an excellent *pièce de résistance* for those persons who do not believe in the doctrine of derivation of species. There are some characters, it is true, which are not subject to such variation as to be embarrassing. Such are the greater or less number of femoral pores, and the granular lateral scales of some of the species. The carination and wrinkling of the head-scales is frequently a valid character, but is especially unreliable in the *S. undulatus*, and one or two other species. The size of the dorsal scales varies in most of the species; the number entering a head length varying two to three in the large scaled spaces, and three or four in the small-scaled ones. The division of the supraocular plates into two or more rows is constant in a few species only; in others it is variable, notably in the *S. torquatus*. The longitudinal division of the anterior frontal is constant in the *S. variabilis*, *S. siniferus* and *S. squamo-*

sus, but is present or absent indifferently in several others. The number of supraoculars in the principal row may be four or five in most of the species.

The greatest difficulty is experienced in distinguishing the North American species. They are much fewer in number than has been represented to be the case, and the few that are admissible do not present the strong characteristics that most of those of more southern regions. The *S. undulatus* has an almost continental distribution in North America, within the range of temperate and subtropical climates.

In the following synopsis little attention is devoted to coloration, for although it furnishes important characters in many of the species, in others it is less distinctive. This part of the description is left for a fuller monograph.

I acknowledge here the aid I have derived from M. Bocourt's work already cited. This naturalist in identifying and figuring the types of Wiegmann, has rendered an important service to herpetology.

I. Femoral pores 2-6.

Facial scales smooth; supraoculars wide; one parietal plate; two canthals; no collar *S. horridus*.

Facial scales keeled; laterals smaller than dorsals, directed upwards and backwards; two canthals; two parietals; colors bright... *S. siniferus*.

Facial scales keeled; laterals smaller, directed upwards and backwards; two parietals; one canthal; colors dull. *S. squamosus*.

II. Femoral pores ten and more.

A Scales of the sides granular.

Facial scales keeled; supraoculars wide; both frontals divided; parietals two; canthals two; ten scales in head length..... *S. utiformis*.

AA. Scales of sides squamous.

* Facial scales keeled or wrinkled.

† One scale on canthus rostralis.

One parietal; twelve dorsal scales in a head length..... *S. chrysostictus*.

†† Two scales on canthus rostralis.

Lateral scales equal dorsal, longitudinal; anterior frontal single; supraoculars long; two parietals *S. scalaris*.

Like *æneus*, but head and limbs shorter; supraoculars short; 8 scales in a head length, color green..... *S. æneus*.

Lateral scales smaller than dorsals, directed obliquely; supraoculars short, anterior frontal divided; two parietals *S. variabilis*.

** Facial scales smooth.

† No color band across nape.

‡ One scale on canthus rostralis.

Dorsal scales converging to the middle line; two small parietals; two rows blue spots on the belly..... *S. pyrrocephalus*.

Dorsal scales in parallel rows; one large parietal; belly unspotted.....
S. malachiticus.

‡‡ Two scales on the canthus rostralis.

‖ Scales small; 12-22 in a head length.

§ One row of large supraoculars, with granulars.

- Three parietals; 14-15 scales in a head length; color in longitudinal bands.....*S. graciosus*.
 §§ Two or more rows of flat supraoculars.
 Three or two parietals; 12-15 scales in a head length; no bands.
S. grammicus.
 Three parietals; 18-22 scales in a head length; color in narrow cross-lines*S. microlepidotus*.
 ||| Scales larger; ten and fewer in a head length.
 § Two or more distinct parietals on each side.
 Three parietals; 9-10 scales in a head length; two or more bands; no collar.....*S. consobrinus*.
 Two parietals; no bands, a black collar from shoulder to shoulder across throat.....*S. viviparus*.
 §§ One parietal; sometimes a minute one on its posterior border.
 a. One row of large supraocular scales.
 b. Scales on side of neck and shoulder smaller.
 Two rows of spots on back.....*S. biseriatus*.
 bb. Scales of side of neck, etc., larger.
 Parietal scales not wider than interparietal, which is not wider than long; 9-10 scales in a head length; femoral pores 12-17.....*S. undulatus*.
 Like *undulatus*, but larger; femoral pores 10; throat not blue; brown spotted above.....*S. spinosus*.
 Parietal scales wider than interparietal, which is not wider than long; 6-7 scales in a head length.....*S. zosteromus*.
 Parietal scales as wide as interparietal, and all wider than long; 7 scales in a head length*S. melanorhinus*.
 aa. Two rows of large supraocular scales.
 One narrow parietal on each side; a black vertical spot on each scapula; green.....*S. tenuicnemis*.
 †† A dark band or collar crossing the nape (sometimes interrupted).
 1. Dorsal scales in parallel series.
 a. Dorsal scales in 25-35 series between occiput and groin.
 β. One canthal scale; dorsals strongly mucronate; one row of large supraoculars.
 "Collar incomplete above; head less than one-fifth of length of head and body; throat blue;" Bocourt.....*S. lunai*.
 Collar very narrow, not pale bordered; a little interrupted above; head less than one-fourth of head and body; throat dark slate, yellow spotted.....*S. ferrariperezi*.
 Collar complete, yellow bordered before and behind; head about one-fifth head and body; throat, belly and groin black.....*S. melanogaster*.
 ββ. Two canthal scales.
 One large row of supraorbitals; dorsal scales strongly mucronate; collar distinctly interrupted at middle, yellow bordered; throat and middle of belly yellowish-green.....*S. serrifer*.

- “One large row of supraorbitals; dorsal scales strongly mucronate; throat and sides of belly blue; collar complete, not light bordered”..
acanthinus.
- One or two rows of large supraorbitals; dorsals not or but little mucronate; collar complete, light bordered; sides of belly blue, throat greenish or spotted.....*torquatus*.
- aa*. About forty scales between occiput and groin.
- Two canthal scales; dorsals not mucronate; one row of large supraoculars; collar complete, pale-bordered.....*jarrovii*.
- aaa*. About fifty scales between occiput and groin.
- Two rows of larger supraocular scales; collar complete, light bordered....
ornatus.
2. Dorsal series of scales converging to the middle line posteriorly.
- Forty-three scales between occiput and groin; two canthal scales; two rows larger supraoculars; collar a narrow black line directed backwards from each shoulder, pale bordered behind, mostly interrupted; throat not blue.....*dugesi*.

SCELOPORUS HORRIDUS Wiegmann, Herpetologia Mexicana, pt. i, 1834, p. 50. *Tropidolepidus horridus* Dum. Bibr., Erpet. Générale, iv, 1837, 306. Bocourt, Commission Scientifique Mexique, p. 178, pl. xviii, 8, 8a, 8b. *Sceloporous oligoporus* Cope, Proceeds. Acad. Philada., 1864, p. 177.

Colima, *J. Xantus*, *A. Dugés*; Guadalajara, *Major*; Vera Cruz, *Comm. Scientifique*.

SCELOPORUS SINIFERUS Cope, Proceeds. American Philosoph. Soc., 1869, p. 159. *Sceloporus humeralis* Bocourt, Mission Scientifique, 1875, p. 206; pl. xviii, bis figs. 3, 3a, 3b.

Tehuantepec, *Sumichrast*; Oaxaca, *Sallé*.

SCELOPORUS SQUAMOSUS Bocourt, Mission Scientifique Mexique, 1875, 212, pl. xviii, bis 7, 7a, 7b, 7c; xix fig. 3.

Costa Rica, *Van Patten*; Guatemala, *Miss. Scientif.*

SCELOPORUS UTIFORMIS Cope, Proceeds. Academy, Philada., 1864, p. 177; Bocourt, Miss. Sci. Mex., 187, p. 208; pl. xviii, bis, 6, 6a, 6b.

Colima, *J. Xantus*, *Dugés*.

SCELOPORUS CHRYSOSTICTUS Cope, Proceeds. Academy, Philadelphia, 1866, p. 125. *Sceloporus cupreus* Bocourt, Miss. Scientif. Mex., 1875, p. 210; pl. xviii, bis 2, 2a, 2b.

Yucatan, *Schott*; Guatemala, *Van Patten*; Oaxaca, *Boucard*.

SCELOPORUS SCALARIS Wiegmann, Herpetol. Mexicana, 1834, p. 52, tab. 8, fig. 2. *Tropidolepis scalaris* Dum. Bibr., Erpet. Gen., iv, 1837, p. 310. *Sceloporus scalaris* Baird, U. S. Mexican Boundary Survey, Reptiles, p. 6. Bocourt, Miss. Scient. Mexique, p. 202, 1875; pl. xviii, bis, 9, 9a, 9b.

Colima, *Dugés*; Cuernavaca, *Mehédin*; City of Mexico, *Cope*; Zacual-

tipan Hidalgo, *Cope*; Orizaba *Sumichrast*; Monterey, *Cope*; S. W. Texas, *Marnoch*; Sonora, *Kennerly*.

SCELOPORUS AENEUS, Wiegmann, Herpet. Mev. 1834, p. 52; *Tropidolepis aeneus*, Dum. et. Bibr. Erp. Gen. t. iv, 1837, p. 309; *Sceloporus aeneus*, Fitzinger, Syst. Rept., 1843, p. 75; *Tropidolepis aeneus*, Gray, Cat. Brit. Mus., 1845, p. 210; Id. Aug. Duméril, Cat. Mus. Paris, 1851, p. 78; *Sceloporus aeneus*, Bocourt, Com. Sci. du Mex., iii, Rept. p. 204. pl. xviii, bis, fig. 4, 4a, 4b.

“Mexico,” *Boucard*; Jalapa, *Flohr*.

SCELOPORUS VARIABILIS Wiegmann, Herpetologia Mexicana, 1834, p. 51; Bocourt, Miss. Sci. Mexique, 187, p. 200, pl. xviii, bis, 1, 1a, 1b, xix, fig. 2. *Tropidolepis variabilis* Dum. Bibr., Erpet. Gen., iv, 1837, p. 308.

Guatemala, both slopes, *Commission Scientifique*; La Union, San Salvador *do.*; Guatemala, *Hague*; Tehuantepec, *Sumichrast*; Orizaba, *Sumichrast*; Mirador, Vera Cruz, *Sartorius*; Xalapa, *Montes de Oca*; Monterey, *Cope*.

SCELOPORUS PYRRHOCEPHALUS Cope, Proceeds. Academy Philada., 1864, p. 177.

Colima, *Xantus*; Guadalajara, *Major*.

SCELOPORUS MALACHITICUS Cope, Proceeds. Academy Philada., 1864, p. 178. *Sceloporus smaragdinus* Bocourt, Mission Scientifique Mexique, 1875, p. 186, pl. xviii, figs. 6, 6a 6b; xix, figs. 11a, 11b.

Costa Rica, *Riotte, Gabb*; Guatemala, *Hague, Salvin, Van Putten*; Yucatan, *Schott*.

SCELOPORUS GRACIOSUS Bd. Gird., Proceeds. Acad. Philada., 1852, p. 69, Stansbury's Report Grt. Salt Lake, 1852, 346, pl. v, fig. 1. Bocourt, Miss. Sci. Mexique. *Sceloporus gracilis* Bd. Gird., Proceeds. Acad. Philada., 1852, 175, Girard Herpetol. U. S. Ex. Exped., 1858, pl. xx, fig. 1-9.

Salt Lake City, Utah., Pitt river, California, *Newberry*; Owen's valley, Cal., *Horn*; Southern Oregon, *Cope*.

SCELOPORUS GRAMMICUS Wiegmann, Herpetol. Mexicana, pt. i, 1834, p. 51: etiam Isis von Oken, p. 369, exclus. var. *microlepidota*; Bocourt, Miss. Sci. Mex., 187, p. 192, pl. xviii, bis 12, 12a, 12b; *Sceloporus heterurus* Cope, Proceeds. Acad. Philada., 1866 p. 332.

Tehuantepec, *Sumichrast*; Mirador, Vera Cruz, *Sartorius*.

SCELOPORUS MICROLEPIDOTUS Wiegmann, Herpetol. Mexicana, 1834, p. 51; Bocourt, Miss. Sci. Mexique, p. 194, pl. xviii, bis figs. 13, 13a, 13b, 13c, 13d. *Tropidolepis microlepidotus* Dum. Bibr., Erp. Gen., iv, 1837, p. 307.

Colima, *Ghiesbrecht*; Puebla, *Dugés, Ferrari-Perez*; Oaxaca, *Boucard*; Toluca, *Villada*; Zacualtipan, *Bernad, Cope*; Mirador, Vera Cruz, *Sartorius*; Orizaba, *Sumichrast*; Guanajuato, *Dugés*.

SCELOPORUS CONSOBRINUS Baird Girard, Marcy's Report on Red river,

1853, p. 237. *Sceloporus garmani* Boulenger, Proceeds, Zool. Soc. London, 1884.

Ogden, Utah, *Hayden*.

SCELOPORUS VIVIPARUS Cope, sp. nov.

Scales of back in parallel series, rather large, eight in a head length, strongly keeled and mucronate. Lateral scales but little, abdominal scales a good deal smaller than the dorsals. Lateral series not very oblique. Head scales entirely smooth. One row of wide supraoculars, separated by one row of very small scales from the supraorbitals, and two rows from the superciliaries. Anterior frontal undivided; interparietal subquadrate; two parietals on each side. Preauricular scales not larger than temporals; two canthals. Posterior foot reaching to front border of ear meatus when leg is extended. Femoral pores fifteen. Length of head a little less than one-fourth that of head and body.

Color of males above brown, sometimes green; of a female, green. Sides of belly blue with a dark internal border; belly, breast and chin straw-color. A black spot in front of the shoulder, which rises into a point just above the humerus, but joins its fellows by a black line round the throat. In front of it, the throat is, for a short distance, pale blue. In the female there are some indistinct dark spots on the sides of the back.

Four specimens from Orizaba, Vera Cruz, *Sumichrast*; one from Mirador, *Sartorius*; and one from Tehuantepec, *Sumichrast*. The last named has two rows of larger supraocular scales. The female from Orizaba contains in the oviducts six well-formed young not enclosed in egg shells, which shows that the species is viviparous.

SCELOPORUS BISERIATUS Hallowell, Proceeds. Acad. Philada., 1854-5, p. 93. U. S. Pacific R. R. Survey Report, 1859, Reptiles, p. 6, pl. vi, vii. Bocourt, Mission Scientif. de Mexique, 195, pl. xviii, bis fig. 10, 10a, 10b.

California, *Heerman*, *Lorquin*, *Boucard*.

SCELOPORUS UNDULATUS Wiegmann, Isis, 1828, 369, Bd. Gird., U. S. Pac. R. R. Surveys, Whipple's Report, p. 37; Bocourt, Miss. Sci. Mexique 195, pl. xviii, bis figs. 11, 11a, 11b. *Stellio undulatus* Latreille, Hist. Nat. Rept., ii, 1802, p. 40. *Agama undulata* Daudin, Hist. Nat. Rept., iii, 1805, p. 384. *Uromastix undulatus* Green Merrem. *Tropidolepis undulatus* Cuv., Regne Animal, Ed. ii, ii, 1829, p. 38. Gray Catal. Brit. Mus., 1845, 208. Duméril Bibron., Erp. Générale, iv, 1837, p. 298. Holbrook, N. Amer. Herpetol., iii, 1838, p. 58, pl. viii. *Sceloporus occidentalis* Bd. Gird., Proceeds. Acad. Phila., 1852, p. 175. *S. frontalis* Bd. Gird., loc. cit., *Sceloporus longipes* Baird, l. c., 1858, p. 254. *S. dispar* Bd. Gird., l. c., 1852-3, p. 127. *S. floridanus* Baird, l. c., 1858, p. 254.

North America, from ocean to ocean, not south of Arizona and New Mexico.

As already remarked, the wrinkling of the plates of the head of this spe-

cies does not occur in half the individuals. On the other hand, the wide supraocular plates are never divided.

Subspecies *SMARAGDINUS* Cope, Report U. S. Expl. Surv. W. of 100th meridian. G. M. Wheeler, Vol. v, Zoölogy, p. 572, pl. xxiv, fig. 2.

Differs considerably from the typical *S. undulatus* in color, being either green above, or brown with large green spots transversely arranged.

Great Basin; Utah, Nevada and Oregon, *Newberry, Henshaw, Cope.*

SCELOPORUS SPINOSUS Wiegmann, Isis, 1828, p. 369; *Tropidurus spinosus*, Wagler, Syst. Amph., 1830, p. 146; *Tropidolepis spinosus*, Gray, Synops. Rept. in Griffith's Anim. Kingd. t. ix, 1831, p. 43; *Sceloporus spinosus*, Wiegmann, Herp. Mex. pars 1, 1834, p. 50, tab. vii, fig. 3; *Tropidolepis spinosus*, Dumér. et Bibron, Erp. Gen. t. iv, 1837, p. 304; *Sceloporus spinosus*, Fitzinger, Syst. Rept., 1843, p. 75; *Tropidolepis spinosus*, Gray, Cat. Liz., Brit. Mus., 1845, p. 209; Aug. Duméril, Cat. meth. coll. Rept., 1851, p. 77; *Sceloporus spinosus*, Boucourt, Miss. Sci. du Mexique. iii, Rept. p. 174, pl. xviii, fig. 2, *2a, 2b.*

Guanajuato, *Dugés.*

The *S. spinosus* approaches the *S. undulatus* very closely, differing principally in size and in color, and the smaller number of femoral pores. A Texan form appears to connect the two.

SCELOPORUS ZOSTEROMUS Cope, Proceeds. Acad. Phila., 1863, p. 105. *S. clarkei* subsp. *zosteromus* Cope, Check-list, 1875, p. 49.

Lower California, *Xantus, Belding*; Southern Arizona.

SCELOPORUS MELANORHINUS Bocourt, Ann. des Sciences Naturelles, iii, 1876, p. 85.

Tehuantepec, *Sumichrast*; Colima, *Xantus.*

SCELOPORUS TÆNIOCNEMIS, sp. nov.

Scales of the back in nearly parallel series, twelve of them equaling the length of the head, keeled and mucronate. Two canthal scales. Anterior frontal not longitudinally divided. Supraocular scales in two larger rows, of which the inner contains four or five scales, and the outer three or two shorter ones. One parietal scale. All the head scales smooth. Scales of sides equal dorsals, their keels directed upwards and backwards; those of belly smaller and entire. Thirteen femoral pores.

Color above bluish olive, with numerous small irregular black spots. A vertical black spot rises vertically from the shoulder, and is separated from that of the opposite side by a space equal to its length. Inferior surfaces brassy, the sides blue-tinged in front of the groin; chin blue; no black collar on throat or nape. Two black bands, separated by a brown one on the posterior face of the thigh.

Length of head and body to vent, M. .040; length of head to line of auricular meatus, .011; length of posterior leg, .030; of posterior foot, .016; of tibia, .008.

Guatemala, *Hague.* A single specimen.

SCELOPORUS LUNÆI, Bocourt, Com. Sci. du Mex., iii Rept., p. 184, pl. xviii, bis fig. 5, 5a, 5b.

Guatemala, *Bocourt*,

SCELOPORUS FERRARIPEREZI, sp. nov.

The species belongs to the *S. torquatus* group, but is quite different. It is of about the size of the *S. dugesi*, and resembles it in coloration, but has entirely different characters of the squamation of the head and body.

Dorsal scales large in parallel rows, 6.5 in a head length, 25 in a line from head to line connecting groins, with well developed keels and mucrones. Lateral scales a little smaller in oblique series, which run upwards and backwards. Ventral scales a good deal smaller. Femoral pores eighteen. Auricular scales not larger than those in front of them. Scales of head smooth, one only in canthal row (in one of five specimens, there are two). Anterior frontal not divided, one row of wide transverse supraoculars, separated from the supraorbitals by one row of scales, and by two smaller rows from the superciliaries. Interparietal plate subquadrate; parietals two on each side. The posterior foot is short, and reaches a little anterior to the meatus auditorius when the posterior leg is extended forwards.

Color above dark olive, below light yellow. A black scapular spot which sends a narrow black line upwards and backwards, which sometimes meets its fellow of the opposite side, but generally fails to do so by one or two scales. Sides of belly bluish slate color; throat dark slate color, with scattered yellow scales. No black collar across throat. A female has scarcely any markings, there being a few brown lines on the scales above and below.

From Dr. Alfred's Dugés; Nos. 9874-76-78-80 and -95. Named in honor of Dr. Fernando Ferrari-Perez, the energetic chief of the Comision Cientifica of Mexico. ? From Guanajuato.

SCELOPORUS MELANOGASTER, sp. nov.

Dorsal scales in parallel series, large, six of them equaling a head-length, all keeled and strongly mucronate. Lateral scales smaller than dorsals, graduating into the still smaller abdominals. Lateral abdominals mucronate and notched, not keeled. One canthal scale which reaches the large subareal. A small flat scale on the upper side of the canthus represents the anterior canthal. Supraoculars in one row of five large plates, which are separated by a rather large row from the supraorbitals all round, and by two rows of smaller scales from the superciliaries. Auricular scales large. Eighteen femoral pores. Scales of front entirely smooth; anterior frontal not divided; two parietals. Posterior foot short, scarcely equaling the length of the head, including the auricular meatus.

Color above sea green, with a wide olivaceous band down the median dorsal region. A black nuchal collar of only two scales in width, which has a broad yellow border. The anterior border is divided by three longitudinal striae of the ground color on adjacent rows of scales. Top of head dark olive. Lips, thorax, middle of abdomen, extending on each side over

the groin, black; chin, throat and sides blue. The collar is a continuation of the black of the thorax.

Length of head and body to vent, M. .116; length of head to posterior line of auricular meatus, .028; length of posterior leg, .068; of hind foot, .031; of tibia, .026.

A male specimen of this species was sent to the National Museum by Dr. Dugés of Guanajuato, Mexico. Associated with it is another specimen apparently of a variety of the *S. torquatus*, with which it agrees in all essential characters. Nevertheless, it agrees with the *S. melanogaster* in the character of its collar and the borders of it. The color below is yellow, with the throat and chin marbled with a very pale blue, between yellow scales. The dorsal region is light brown, and there are four rows of dark brown spots. There are two canthal plates and one row of large supraoculars. No. 9877, National Museum; from Dr. Alfredo Dugés. Probably from Guanajuato.

SCELOPORUS SERRIFER Cope, Proceeds. Academy Philada., 1866, p. 124.

This species is, as supposed by Bocourt, nearly allied to the *S. torquatus*. Of four adults specimens, three have the collar interrupted, and one has it continuous over the nape. In three young specimens the collar is uninterrupted. In none of the adults are there more than ten femoral pores.

Yucatan, *Schott*.

SCELOPORUS ACANTHINUS Bocourt, Mission Scientifique Mexique, iii, Reptiles, 180; pl. xviii, figs. 10, 10a, 10b; xix, figs. 4, 4a.

St. Augustino, West Gautemala, *Commision Scientifique*.

SCELOPORUS TORQUATUS Greene and Peale; *Agama torquata* Greene and Peale, Journ. Acad. Phila., t. vi, 1827-1828, p. 231; *Sceloporus torquatus* Wiegmann, Isis, 1828, p. 369; *Tropidurus*, *Sceloporus torquatus* Wiegmann, Wagler, Syst. Amph., 1830, p. 146; *Tropidolepis torquatus* Gray, Synops. in Griffith's Anim. King., t. ix, 1831, p. 43. *Sceloporus torquatus* Wiegmann, Herp. Mex., pars. i, 1834, p. 49, tab. vii, fig. 1; *Tropidolepis torquatus* Dum. et Bibr., Erp. Gen., t. iv, 1837, p. 301; *Sceloporus torquatus* Fitzinger, Syst. Rept., 1843, p. 75; *Tropidolepis torquatus* Gray, Cat. spec. Liz., 1845, p. 208; Aug. Dumeril, Cat. meth. coll. Rept., 1851, p. 77; *Sceloporus formosus* Wieg., Herp. Mex., pl. i, 1834, p. 50, tab. vii, fig. 2; *Tropidolepis formosus* Dum. et Bibr., Erpet. Gener., t. iv, 1837, p. 303; *Sceloporus formosus* Fitzinger, Syst. Rept., 1843, p. 75; *Tropidolepis formosus* Gray, Cat. Liz., 1854, p. 209; Aug. Duméril, Cat. meth. coll. Rept., 1851, p. 77. *Sceloporus formosus* Bocourt, Com. Sci. du Mexique, iii Rept., p. 182, pl. xviii, fig. 3, 3a, 3b, 3c. *Sceloporus poinsettii* Baird and Girard, Proc. Acad. Phila., 1852, p. 126; U. S. and Mex. Bound. Survey, 1859, p. 5, pl. xxix, figs. 1-3. Bocourt, Miss. Sci. du Mex., iii Rept., p. 171, pl. xviii, fig. 9, 9a, 9b, 9c.

Colima, *Dugés*; Oaxaca, *Boucard*; Xalapa, *Keating*, *Montesdeoca*; Vera Cruz, *Sartorius*; Monterey and Laredo, *Cope*; Texas, *Clark*.

The most difficult problems to settle in the genus *Sceloporus*, are the limits of the species *S. torquatus* and *S. undulatus*. With considerable material, and the experience of Mr. Bocourt before me, I do not feel that I can make more than a contribution to the question as regards the *S. torquatus*. The collection of individuals I include under that name, embraces some with one row of large supraocular plates, and some with two; some with mucronate, and others with entire dorsal scales in numbers varying from twenty-five to thirty-five between occiput and groin; specimens with the anterior collar border divided and those where it is entire; and those with blue and those with gray throat and chin. In the following synopsis of varieties I indicate the localities where they are derived.

I. One row of large supraocular scales.

Dorsal scales not mucronate; collar border not interrupted. . . . *S. t. torquatus*.
Xalapa, *Keating*.

II. Two rows of large supraocular plates.

Dorsal scales not mucronate; collar border not interrupted; nowhere blue. *S. t. poinsettii*.

(Four from S. W. Texas, *Cope*, and two from uncertain Mexican localities.)

Dorsal scales not mucronate; collar with anterior border divided; back dark spotted, sometimes with light borders; chin, throat and sides blue *S. t. cyanogenys*.

(Seven from Monterey, Nuevo Leon, *Cope*.)

Dorsal scales strongly mucronate; anterior collar border divided, and forming two yellow spots on nape; sides blue; chin and throat not blue. *S. t. mucronatus*.

(Four from Vera Cruz, *Sartorius*.)

Dorsal scales strongly mucronate, a little smaller (eight equaling head); collar very slightly interrupted, borders very pale; green, sides and narrow inferior collar blue; chin and throat not. *S. t. formosus*.

Four from Xalapa, *Montes de Oca*.

As in *S. t. cyanogenys*, but scales smaller; 8-10 in head; smaller
S. t. minor.

Two specimens from *Dugés*; Zacatecas.

Finally the second form described under *S. melanogaster* may constitute another variety approaching the *S. t. torquatus*, but with the anterior collar border interrupted as in *S. t. cyanogenys*, and the back spotted as in *S. t. formosus*.

Should the interruption of the collar seen in the *S. serrifer* prove to be an inconstant character, that form must be regarded as subordinate to the *S. torquatus*, entering Sect. I, but related to the *S. t. mucronatus*. Should the anterior canthal scale appear in the *S. melanogaster*, nothing but color will distinguish it from the *S. t. torquatus*, but the strongly mucronate scales, and the very different color, which are, however, weakened in importance by the *S. t. mucronatus* with similar scales, and the *S. t. cyanogenys* with its blue chin and throat.

The definition of the *S. t. torquatus* is taken from the type of Peale and Greene, which is preserved in the Museum of the Philadelphia Academy. It is correctly identified and figured by Bocourt.

SCELOPORUS JARROVII Cope, Report U. S. Geol. Expl. Surv. W. of 100th mer. p. 569, pl. xxiii, fig. 2, 2b, 2c, 2d.

Southern Arizona.

SCELOPORUS ORNATUS Baird Girard, Proceeds. Academy Philada., 1858, p. 254. Rept. U. S. Mex. Boundary, Survey, Zool. Reptiles, p. 5.

Patos Coahuila, *Couch*.

SCELOPORUS DUGESI Bocourt, Miss. Sci. Mexique, iii. p. 188; pl. xviii, fig. 7, 7a, 7b. *Tropidolepis intermedius* Dugés, La Naturelleza, Mexico, vol. iv, p. 29, pl. i, figs. 21-32.

Guanajuato, *Dugés*.

APPENDIX ON A COLLECTION FROM NEW PROVIDENCE, BAHAMA ISLANDS.

This collection was sent to the Academy of Natural Sciences of Philadelphia by Professor Henry C. Chapman, and was submitted to me for identification by my friend Allan Gentry, Assistant Curator.

TRACHYCEPHALUS SEPTENTRIONALIS Tsch.

LITHODYTES PLANIROSTRIS Cope.

ANOLIS SAGRÆ Bibron.

ANOLIS PRINCIPALIS L. var. PORCATUS Gray.

UNGUALIA MACULATA Bibr.

DIADOPHIS RUBESCENS, sp. nov.

Scales in seventeen longitudinal rows, uniporous. Superior labials eight, the third, fourth and fifth entering the orbit; the fifth higher than long, and the seventh and eighth longer than high. The sixth narrowed and truncate above. Nostril large. Loreal plate with the posterior border oblique and equal to the inferior, and longer than the superior or anterior. Preocular reaching top of head, but not touching frontal. Postoculars two, small. Temporals 1-2, the first in contact with both postoculars and the posterior three labials. Rostral broader than high, not protuberant, barely visible from above. Internasals and prefrontals each subquadrate. Frontal elongate, twice as long as wide in front; superciliary borders a little concave. Parietal plates elongate, common suture not so long as frontal. Gastrosteges, 162; anal divided; urosteges, 119. The teeth are subequal and are rather widely spaced.

Color light reddish-brown above, below dirty white tinged with pink. A brown band from nostril to eye, and a dark shade along the superior borders of the labials posterior to the eye. Labials and chin yellowish; the former very faintly reddish-brown.

Total length, M. .413; of tail, .139.

EXPLANATION OF FIGURES.

Fig. 9a, p. 184, side view of head, of *Anelytropsis papillosus*, $\frac{3}{2}$ natural size. Fig. 9b, top of head; and 9c, inferior view of same, both $\frac{3}{2}$ nat. size.

This figure was published in the previous number of the Proceedings of the Society, May 8th, 1885.

Obituary Notice of William S. Vaux. By Philip H. Law.

(Read before the American Philosophical Society, May 1, 1885.)

William Sansom Vaux was born in Philadelphia, on March 19, A.D. 1811.

He was the eldest son of George Vaux, a member of the Philadelphia Bar, and of Eliza H. Vaux, his wife, a daughter of William Sansom, who was a prominent merchant in the East India trade at a time when Philadelphia formed the centre of the commerce of the United States, and who was also famous for his enterprise in building. Many large blocks of buildings, now largely converted into stores and business offices, remain to testify to his sagacity in appreciating the growth of the City of Philadelphia. Mr. Vaux's parents on both sides were descended from the members of the Society of Friends. His ancestors had been long settled in the Province of Pennsylvania, and had long occupied a prominent and respectable position there. Indeed, I understand that originally they were connected by marriage with the families of George Fox, the founder of the Society of Friends, and of William Penn, the founder of the province which bears his name.

Mr. Vaux, however, in early life left the Society, and became connected with the Episcopal Church. Inheriting as he did large means, Mr. Vaux, was, I believe, never actively engaged in business except in that which was made necessary by the management of the family estates.

He early developed scientific and literary tastes, for the cultivation of which his ample fortune gave him both the leisure and the means.

Particularly was he devoted to mineralogy. In collecting rare specimens, he spared neither time, labor nor money. His collection of rare minerals became one of the most valuable in the United States. In 1834, when about twenty-three, he was elected a member of the Academy of Natural Sciences of Philadelphia; continued an active member all his life; and rose to being one of its Curators, and afterwards Vice-President. He was always a large contributor of money to its support.

Mr. Vaux was one of the founders of the Numismatic and Antiquarian